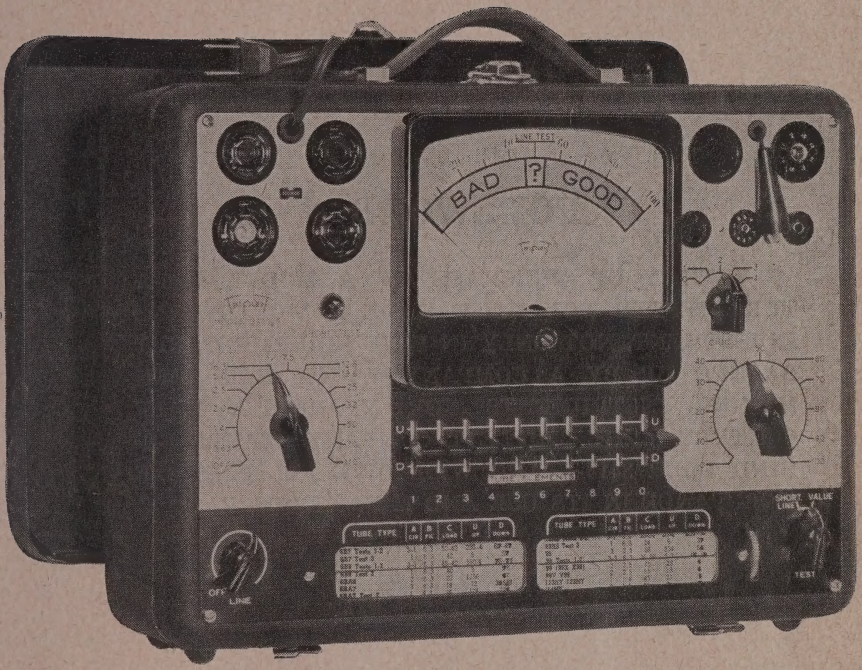
INSTRUCTION MANUAL

MODEL 3413-A
TUBE TESTER



Model 3413A

FOREWORD

WITH YOUR PURCHASE OF A MODEL 3413-A TUBE TESTER YOU HAVE MADE A WORTHWHILE INVESTMENT, NOT ONLY IN FINE EQUIPMENT, BUT BACKED UP BY A COMPANY WHICH HAS BEEN MAKING INSTRUMENTS FOR NEARLY A HALF CENTURY. THE TRIPLETT COMPANY STANDS BEHIND YOUR 3413-A AND WILL GIVE ALL POSSIBLE ASSISTANCE IN ITS USE AND MAINTENANCE.

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Tube Characteristics and Testing

The high stage of development of the radio tube art with its many variety of tubes has presented a definite problem to the technician in tube testing. In addition, the types of circuits and functions required of these tubes is continually changing. Previously, the common receiver consisted of amplifier tubes, an RF oscillator tube, mixer tube and detector tube. With improvements in AM and the advent of FM & TV, receiving tubes are required to perform additional functions as limiters, multivibrators, sweep oscillators, triggering action and other special functions. To accomplish some of these functions, the tube must be subjected to unusual operating conditions. In addition, differences between receivers impose a still wider range of conditions, as experienced by those who find a tube works in one set but not another.

The technician then is faced with the problem of procuring a universal tube testing device which will provide reasonable assurance the tube will operate satisfactorily under the conditions imposed. Obviously he cannot purchase a seperate tester to test for each condition under which the tube will be subjected.

Fortunately, however, there is one thing common to all these tubes upon which performance depends, thus determining if the tube will operate under either normal or abnormal conditions. This is the condition of the cathode and its ability to supply electrons required for the space current. This does not mean that all tube characteristics are measured by the cathode emission, but it does form a good basis to judge tube performance under normal and abnormal conditions.

Your model 3413-A employs the cathode condition test in a practical easy to read Good — Bad scale. In addition, the mechanical condition of the tube is easily tested, such as open elements, shorted elements, and leakage between elements. The model 3413-A in one compact package provides a universal tube testing device for tubes which must operate under a wide variety of conditions is the simplest to use.

The ever increasing variety of tubes for AM, FM, TV has established the need for complete flexibility in tube testers as made possible by the unique lever switch originated by Triplett.

Another problem now confronts the technicians in tube testing, VIZ: abnormal operating condition imposed on a tube in modern FM, TV and many other applications. Not only are the tubes subjected to unconventional application but to a wide range of loads and voltages. It is necessary then, to seek a common basis to determine the merit of a tube even though subjected to abnormal conditions of operation. Such a test, the ability of the cathode to supply the required space current, is incorporated in your Model 3413-A.

This test combined with the facility to set up new tubes through the flexible Triplett lever switching and ability to test the mechanical condition of the tube (open elements, shorted element leakage yields in one compact package a most practical universal tube tester.

Operating Instructions

SETTING CONTROLS (Follow in Order Listed)

(1) Insert power cord into a 110 volt 60 cycle supply.

(2) Set "A-CIRCUIT" knob as shown in column "A-CIR."

(3) Set "B-FILAMENT" knob as shown in column "B-FIL."

(4) Set "C-LOAD" knob as shown in column "C-LOAD."

(5) Set levers as shown in column "U-UP" and "D-DOWN."

(6) Insert tube in socket.

(7) Turn "LINE" knob until meter pointer reads at "LINE TEST" mark.

SHORT TEST

(8) Move each lever referred to in light face type on chart (one at a time) two positions and back. For example, type O1-A move levers 2 and 3 to "D" position. A shorted tube is indicated by a bright red glow of the "SHORT TEST" neon lamp.

VALUE TEST

(9) Hold "TEST" knob in "VALUE" position and read tube condition on meter.

(10) Release "TEST" knob. Return all levers to center position.

Special Test

OPEN ELEMENT TEST

(1a) Follow operations (1) through (9).

(2a) With "Test" knob in "VALUE" position, move each lever in "U" position (only those shown on chart in light face type) to "D" position (one at a time) and return. Continuity between tube pin and the element being tested is indicated by a change in pointer deflection. A small change denotes a satisfactory plate or screen connection. A large change denotes a satisfactory grid connection. When there is only one lever in "U" position, no open element test need be made.

(3a) Release "TEST" knob.

FILAMENT AND TAP CONTINUITY TEST

[Perform the following test if tube type is followed by asterisk (*)]

(1b) Follow operations (1) through (7).

(2b) Set "B-FILAMENT" knob back to .63 position.

(3b) Move each lever referred to in **dark face** type on chart (one at a time) two positions and back. For example, type 01-A move lever 4 to "U" position. "Good" filament or other internal pin connection is indicated by a bright red glow of the "SHORT TEST" neon lamp.

CONTINUITY TEST (pilot lamps and other miniature base bulbs)

(1c) Follow operations (1) and (7) under "LINE ADJUSTMENT."

(2c) Set "B-FILAMENT" knob to voltage of lamp under test.

(3c) Place lamp in center of 7 prong socket.

(4c) A "good" lamp is indicated by normal lighting of its filament.

CONTINUITY TEST (ballast tubes and electrical appliances)

(1d) Follow operations (1) and (7) under "LINE ADJUSTMENT."

(2d) Place jumper lead in No. 1 position (marked) of octal base.

(3d) Set "B-FILAMENT" knob to "OFF" position.

(4d) Set lever "1" in "U" position.

(5d) Set lever "0" in "D" position.

(6d) Short grid cap lead and jumper lead together and note that the neon lamp glows. Connect grid cap clip and jumper lead to pins of ballast tube or to terminals of appliance being tested. A bright glow of the neon lamp indicates continuity.
Caution: Do not handle the metal parts of the test leads during the test.

(7d) Refer to the ballast tube or appliance manufacturer's data for internal connections.

TESTING MULTI-PURPOSE TUBES

Some multi-purpose tubes require more than one test. An example is a type 6H6. Notice test information given on the roll chart for this type tube. "Tests 1-2" following the tube type means that two tests are necessary, and that all information for making these two tests is found in the same line on the roll chart. A dash is used to separate information used in "Test 1" from information used in "Test 2." Using test information for a type 6H6 in the following example, all information not used in "Test 1" is ignored.

Chart Reads:	A	B	C	U	D
6H6 Tests 1–2	1–1	6.3	25–25	3–5	47–78
For Test 1 use:	1	6.3	25	3	47
For Test 2 use:	1	6.3	25	5	78

When information for two tests is given on a single line, this information is separated by a dash. Information for "Test 1" is found to the left of this dash, and information for "Test 2" is found to the right of this dash.

Notice that the "B-Filament" setting will always be the same though a tube may have one, two, three or more separate tests.

Refer to information given for a type 6SQ7. This tube requires three separate tests. Space permits giving information for only "Tests 1 and 2" on the first line. Information for "Test 3" is given on a second line.

SPECIAL NOTES APPEARING ON ROLL CHART

Special notes on the chart refer **only** to the type tube preceding the notation. For example, notice the note which follows a type 35B5. Also, notice the note which follows Test 2 for a type 117N7. This note applies only to Test 2 for this tube.

A note appearing on roll chart such as: "(Good=40)", etc., indicates that a reading of 40 or higher is satisfactory. (See type 2Y2 as an example. Another example is a type VR-75. A reading of 10 or better is satisfactory for this tube.)

Some tubes, such as VR-75 have more than one type designation. The preferred type number is given first, followed by the less common type number in parenthesis. In the case of a type VR-75, this tube is sometimes referred to as a type 0A3 and is therefore listed as VR75 (OA3).

For information a cross reference listing of these tubes with two type numbers is given:

Tube Type	Listed Under	Tube Type	Listed Under
0A3	VR-75	585	50
0B3	VR-90	979	2X2
0C3	VR-105	951	1B4P
0D3	VR-150	CK1006	1006/CK1006
1F7GV	1F7	1201	7E5
6AB5	6N5	1203-A	7C4/1203A
6Q5	884	1232	7G7
6U5	6G5	1291	3B7
12B7	14A7	1294	1R4
12Z5	6Z5/12Z5	1299	3D6
44	39	1642	2C21/1642
45Z5	40Z5	1852	6AC7
51	35	1853	6AB7
82V	82	2051	2050
83V	83	2523NI	128A/2523NI
84	6Z4	5654	6BC5
G84	2Z2	8016	1B3
V99	99V/V99	AS	57A
99X	99	KR-1	1V
X99	99	KR-5	6A4/LA
117M7	117L7	KR-25	2A5
123HY	113HY/123HY	KR-98	6Z4
145HY	115HY/145HY	XXB	3C6
482-B	182-B	XXD	14AF7
483	183	XXL	7A4
GL-502-A	502-A/GL502-A		

The letters "CL" appearing under Test 2 for tuning eye tubes indicate that the tuning eye shadow should be closed during this test (No meter reading will be observed). The letters "OP" under Test 3 for tuning eye tubes indicate that the eye shadow should be open during this test. (Tube type 6E5 is an example.)

A few special tubes have more than one top cap. A type 615HY is an example. When testing this tube, a wire jumper is connected between the two top caps, and the top cap test lead is clipped onto one of the tube's top caps.

Notes such as "(Adapt BR)" mean that a special adapter "BR" must be used in testing these tubes. Since these adapters are seldom, if ever, used in Radio and TV work, they are not included with your instrument. They may be obtained from your distributor on special order.

An asterisk (*) following a tube type indicates that filament and tap continuity test should be made for this tube.

GENERAL NOTES

Pointer indication above full scale indicates tube is extremely good or more than 130%. To make element continuity check on these tubes, turn lead control "C" so that pointer falls within end scale markings and proceed with continuity tests.

The jumper lead referred to in "CONTINUITY TEST" is not supplied with tester but may be obtained from your distributor on special order (Part No. T-2566-2, with clip T-79-29.)

The seven pin sub-miniature socket is used for 5, 6 and 7 prong tubes. Place the red dot on the tube to the extreme right to match the dot on the socket.

Cathode to heater leakage is indicated by a faint glow of the "SHORT TEST" neon lamp when making short test operation (8).

Lever markings 1 through 9 designate RMA tube pin numbers 1 through 9 respectively. Lever "O" designates the top cap connector.

TUBE SUFFIX LETTER SYMBOLS

In general, tubes with suffixes as noted below can be checked by using the set up for the tube without that suffix.

The letter G indicates a glass tube with an octal base.

GT Indicates use of a T-9 bulb. Y Indicates an "Intermediate loss' base.

The letters A, B, C, D, E, and F used in sequence indicate improved versions unilaterally interchangeable with the prototype or its subsequent versions.

W Indicates a military type and is assigned only on behalf of the armed forces.

CK is the prefix letters for some Raytheon subminiature tubes.

Instructions for Making Chart Listings

NEW TUBE TYPES

From time to time, supplementary tube data will be available to cover new tube types. Until this data is set up, the following may be used to obtain preliminary chart settings.

Use 3 or more new tubes and proceed as follows:

(1f) Refer to manufacturer's handbook under the particular tube type for filament voltage and pin connections.

(2f) Set "A-CIRCUIT" switch as follows:
"0" For tubes with cathode current below 1.5 Ma, generally subminiature types.
"1" for tubes with cathode current from 1 to 4 Ma, generally diode types.
"2" for tubes with cathode current from 3 to 15 Ma, generally filament types excluding diodes.
"3" for tubes with cathode current above 8 Ma. generally indirectly heated (cathode) types excluding diodes.
"4" for target or eye tubes, gaseous rectifiers and gaseous control tubes.

(3f) Set "B-FILAMENT" switch to filament voltage.

(4f) Refer to base drawing in "Manufacturer's Handbook" on tubes for the type being set up. Levers "1234, etc." compare to RMA pin numbers.

(5f) Set all levers in normal or center position. This is one of the "FILAMENT" positions and all elements in this position are tied together.

(6f) Find the first filament connection pin on tube base and leave corresponding lever in center position. This connects one side of filament to the filament transformer.

(7f) Find the second filament connection pin on tube base and move corresponding lever to "D" position. This connects the opposite side of the filament to the filament transformer. If filament is tapped at center, move corresponding filament pins to connect the two sections of filament in parallel. If filament has a panel lamp section, move the levers corresponding to this section to "D" position.

(8f) Find the cathode connection pin on tube base and move corresponding lever to "D" position. This connects the cathode to one side of the filament transformer.

(9f) If the tube is of the multi-section type such as duodiodes, duotriodes, etc., find the elements not under test and move corresponding levers to "D" position.

(10f) Move all levers corresponding to the other active elements under test to "U" position.

(11f) Insert tube into proper socket.

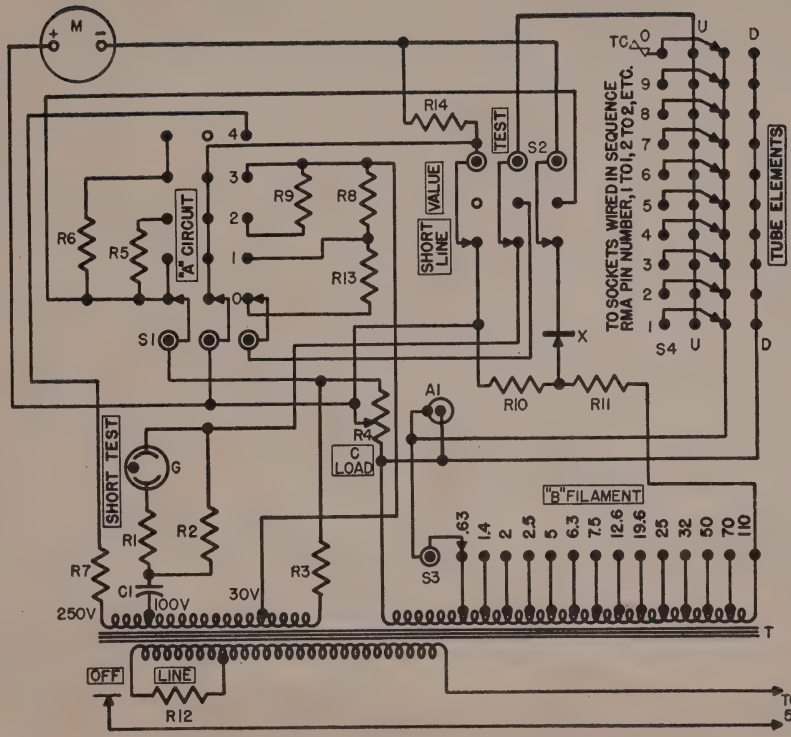
(12f) Turn on "LINE" control and adjust so that meter reads at "LINE TEST" mark.

(13f) Hold "TEST" switch in "VALUE" position. Adjust "C-LOAD" control for each tube so that the majority of the new tubes read 70 on the meter scale.

(14f) List settings in the book for further reference.

Replaceable Parts 3413A

Ref. No.	Quan.	Part Name	Description	Triplett Part No.
C1	1	Capacitor	0.1 MFD 400 DC WV	T-2631-P27
R1	1	Resistor	100K ohm, 1/10W, ±20%	T-2602-1/10-100K
R2	1	Resistor	250K ohm, 1/2W, ±10%	T-2601-1/2-250K
R3	1	Resistor	50 ohm, 1W, ±1%	T-15-1248
R4	1	Resistor	200 ohm, variable	T-16-7
R5	1	Resistor	450 ohm, 1W	T-15-1249
R6	1	Resistor	1800 ohm, 1W	T-15-1251
R7	1	Resistor	2.5K ohm, 10W	T-15-873
R8	1	Resistor	5K ohm, 1/2W, ±1%	T-15-1009
R9	1	Resistor	1K ohm, 1/2W, ±1%	T-15-1011
R10	1	Resistor	1200 ohm, 1W	T-15-1250
R11	1	Resistor	75K ohm, 1W, ±1%	T-15-970
R12	1	Resistor	175 ohm, variable, 25W	T-16-29
R13	1	Resistor	10K ohm, 1/2W, ±1%	T-15-1014
R14	1	Resistor	200 ohm, 1W	T-15-1858
S1	1	Switch	14 pos., 3 deck, 5 active pos.	T-22A-177
S2	1	Switch	3 pole, double throw, 1 deck	T-22A-169
S3	1	Switch	20 pos., 1 deck, 15 active pos.	T-22A-178
S4	5	Switch	3 pos., lever, 1 deck	T-22-56
S4	2	Switch	3 pos., lever, 1 deck, 1 tie lug	T-22-106
S4	3	Switch	3 pos., lever, 1 deck, 2 tie lugs	T-22-107
T	1	Transformer	110V, 19 sec. taps	T-23A-63
X	1	Rectifier	Copper oxide, 1/2 wave, 2 lead	T-2248-1
G	1	Lamp	Neon, 1/25W, GE	T-3024-2
M	1	Instrument	0-500 UA 100 Mv	T-52-661
	1	Case	Tester housing with hardware	T-10B-1014
	1	Cord	Line, 7 ft., black	T-2566-11-7
	10	Knob	Black, for element switches	T-34-37
	3	Knob	1 1/4" bar, black	5804
	2	Knob	2" bar, black	T-34-6
A1	1	Socket	7 prong with pilot socket, blk.	T-2455-48
	1	Socket	Bantam, 6 prong, black	T-2455-58
	1	Socket	9 prong, miniature, black	T-2455-92
	1	Socket	4 prong, black	T-2455-4
	1	Socket	5 prong, black	T-2455-5
	1	Socket	6 prong, black	T-2455-6
	1	Socket	Loctal, 8 hole black	T-2455-8L
	1	Socket	7 prong, miniature, black	T-2455-59
	1	Socket	Octal, 8 hole, black	T-2455-8
	1	Socket	5, 6, & 7 prong, subminiature	T-2455-80



* APPROX. VALUE CALIBRATING RESISTOR

A1	LAMP TEST SOCKET
C1	.1 MFD 400 WV
R1	100K 1/10 W
R2	250K 1/2 W
R3	50 1 W
R4	200 VAR. POT.
R5	450 1 W *
R6	1800 1 W *
R7	2.5K 10 W
R8	5K 1/2 W
R9	1 K 1/2 W
R10	1200 1 W *
R11	75K 1 W
R12	175 VAR. POT. 25 W
R13	10K 1/2 W
R14	200 1 W
S1	T-22A-177
S2	T-22A-169
S3	T-22A-178
S4	T-22-56 (LEVERS *3,4,6,8 & 9) T-22-106 (LEVERS *2 & 7) T-22-107 (LEVERS *1,5 & 10)
T	T-23A-63
X	T-2248-1, RECT.
M	0-500 μA. 100MV. METER
G	LAMP NEON, 1/25 W GE

WIRING DIAGRAM, MODEL 3413-A

THE TRIPLETT ELECT. INST. CO.

RMA STANDARD WARRANTY

(Approved October 15, 1947)

1. We warrant all products manufactured or sold by us to be free from defects in materials and workmanship. This warranty is limited to repairing or replacing any of said products which prove to be defective upon our inspection, and which are within the warranty period of twelve months from the date of our delivery.
2. Products claimed to be defective may be returned to us after written permission is given by us. When material is returned, it must be properly packed and shipped with transportation prepaid. If upon inspection the equipment is found defective ,credit will be given to offset the prepaid transportation.
3. This warranty does not extend to any products which have been subjected to abuse, accident, improper installation or application, alteration or negligence in use, storage, transportation or handling.
4. The failure to return the merchandise within the period specified in Paragraph One shall constitute a final acceptance of the merchandise and conclusively operate as a fulfillment of all warranties, expressed or implied.
5. This warranty excludes all oral or other and implied warranties, and the manufacturer shall in no event be liable for damages for a breach of warranty in an amount exceeding the purchase price of the alleged defective equipment.

RMA STANDARD WARRANTY FOR MAINTAINING PARTS OF DISCONTINUED MODELS

Standard Warranty adopted by the Instrument and Test Equipment Section of the RMA Parts Division for maintaining parts of discontinued models.

The Triplett Electrical Instrument Company warrants this equipment under the Standard Warranty of the Instrument Section of the RMA Parts Division. Parts will be made available for a minimum period of five (5) years after the manufacture of this equipment has been discontinued.

Parts includes all materials, charts, instructions, diagrams, accessories, etc., which have been furnished in the Standard Model.

The Triplett Electrical Instrument Co.

Manufacturers of

PRECISION MEASURING INSTRUMENTS

Bluffton, Ohio

Printed in U. S. A. Part No. T-84-122850

SETTINGS

3413 and 3413-A						3212 and 2413				
TYPE	A	B	C	U	D	A	B	C	U	D
14CP4	1	6.3	25	2	78	1	6.3	25	16	78
17BP4-A	1	6.3	22	2	78	1	6.3	22	16	78

TUBE TYPE	KNOBS A CIR	B FIL	C LOAD	LEVER POSITION UP *	DOWN *
6BH8	1	6.3	19	23	1
6BH8 Test 2	2	6.3	21	789	5
6BL4 □	4	6.3	18	15	37
6BW4	4	6.3	20	7	59
6BW4 Test 2	4	6.3	20	1	5
6CL5 □	3	6.3	17	14580	236
9AQ8	1	9.45	18	12	34
9AQ8 Test 2	1	9.45	18	67	48
	(For 3413 A use 7.5 volt filament)				
1222	3	6.3	20	234	67
CK 5694	1	6.3	20	2*	17
CK 5694 Test 2	1	6.3	20	56	78
6085(E80CC)	1	6.3	20	67	458
6085(E80CC) Test 2	1	6.3	20	12	345
6086(18042)	1	19.6	18	1269	35
	(No open element test on pin 9)				

* Numbers underlined denote dark face type.

Notes for Triplett 3413-A
and 3413-B Roll Chart

I For [illegible] use adapter BY and set filament voltage to 5.

II For 3413-B use adapter BY and set filament voltage to 5

III For 3413-A use adapter BZ and set filament voltage to 5

For 3413-A use filament setting of 5.0 volts.

For 3413-A use filament setting of 2.5 volts.

For special short tests on tubes with internal connections refer to Instruction book.

THE TRIPLETT ELECTRICAL INSTRUMENT COMPANY
Bluffton, Ohio, U. S. A.

Printed in **U. S. A.**

Part No. T-84-28-060153

3413 Triplett Roll Chart Supplement (To Roll Chart T-84-28-060153)

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
00A	2	5	30	23	**4**
01A	2	5	45	23	**4**
0A2	4	Off	40	**15**	**247**
	(Good tube reads 10)				
0A3/VR75	4	Off	30	5	**237**
	(Good tube reads 10)				
OB3/VR90	4	Off	30	5	**237**
	(Good tube reads 10)				
0C3/VR105	4	Off	30	5	**237**
	(Good tube reads 10)				
0D3/VR150	4	Off	30	5	**237**
	(Good tube reads 10)				
0Y4	4	Off	22	5	378
1A4	1	2	28	230	**4**
1A6	2	2	50	34	**6**
1A6 Test 2	1	2	95	250	**6**
1AB5	2	1.2	32	236	**78**
1AD4	1	1.2	24	124	**5**
1AE4	1	1.2	26	236	**15**
1AE5	1	1.4	26	1245	**3**
1AF4	1	1.4	26	236	**15**
1AH4	1	1.4	22	124	**3**
	(No open element test on lever 1)				
1B4	**1**	**2**	**27**	230	**4**
1B4P	2	2	35	230	**4**
1B5	1	**2**	31	25	**6**
1B5 Test 2	1	**2**	40	4	**6**
1B5 Test 3	1	**2**	40	3	**6**
1C6	**2**	**2**	**42**	34	**6**
1C6 Test 2	1	2	68	250	**6**
1C7	**2**	**2**	41	56	**7**
1C7 Test 2	1	2	**56**	340	**7**
1C21	4	Off	45	5	27
1D5	**2**	**2**	**39**	340	**7**
1D5GP	2	2	33	340	**7**
1D7	1	2	31	56	**7**
1D7 Test 2	1	2	95	340	**7**
1D8	**2**	**1.4**	**48**	60	**7**
1D8 Test 2	**2**	**1.4**	**37**	345	**7**
1D8 Test 3	**1**	**1.4**	**95**	8	**7**
1E4	**2**	**1.4**	**45**	35	**7**
1E7	**2**	**2**	**30**	348	**7**
1E7 Test 2	**2**	**2**	**30**	**568**	**7**
1F6	1	2	37	230	**6**
1F6 Test 2	1	2	95	4	**6**
1F6 Test 3	1	2	95	5	6
1F7	1	2	35	360	**7**
1F7 Test 2	1	2	95	5	**7**
1F7 Test 3	1	2	95	4	**7**
1F7-GV	1	2	35	360	**7**
1F7-GV Test 2	1	2	95	4	**7**
1F7-GV Test 3	1	2	95	4	**7**
1G4	1	1.4	30	35	**7**
1G5	2	2	39	345	**7**
1J5	2	2	38	345	**7**
1L6	1	1.4	34	34	**7**
1L6 Test 2	1	1.4	37	256	**7**
	(Good tube reads 40)				
1LG5	2	1.4	35	236	**458**
1U6	1	1.4	34	34	256**7**
1U6 Test 2	1	1.4	40	256	**347**
	(Good tube reads 30)				

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
1V	3	6.3	24	2	**34**
2A4	3	2.5	25	5	7
2A4 Test 2	3	2.5	25	3	**57**
	(No short test)				
2A6	3	2.5	26	20	**56**
2A6 Test 2	1	2.5	40	4	**56**
2A6 Test 3	1	2.5	40	3	**56**
2A7	2	2.5	32	5	**67**
2A7 Test 2	2	2.5	64	2340	**67**
2B4	3	2.5	24	23	**45**
2B6	2	2.5	95	**2**	**67**
2B6 Test 2	3	2.5	50	34	**57**
2B7	3	2.5	47	230	**67**
2B7 Test 2	1	2.5	40	5	**67**
2B7 Test 3	1	2.5	40	4	**67**
2C21/1642	2	6.3	29	30	**27**
2C21/1642 Test 2	2	6.3	29	45	**67**
2C22	3	6.3	22	0	**78**
	(Short top caps together)				
2C26	3	6.3	35	0	**78**
2C51	2	6.3	23	34	**26789**
2C51 Test 2	2	6.3	23	67	**23489**
2C52	2	12.6	26	45	**67**
2C52 Test 2	2	12.6	26	12	**37**
2D21	3	6.3	18	**1567**	**24**
2E22	3	6.3	25	2340	**5**
2E24	3	3.3	22	350	**27**
	(In short test, levers 1, 4 and 6 should show short when moved to "U" position.)				
2E25	3	6.3	28	4580	**2**
2E26	3	6.3	21	**350**	**1246**
2E30	3	3.3	12	1256	**34**
2E31	1	1.2	25	124	**5**
2E32	1	1.2	25	124	**5**
2E35	1	1.2	27	124	**5**
2E36	1	1.2	27	124	**5**
2E41	1	1.2	56	125	**6**
2E41 Test 2	1	1.2	95	3	**6**
	(Good tube reads 10)				
2E42	1	1.2	56	125	**6**
2E42 Test 2	1	1.2	95	3	**6**
2G21	1	1.2	26	2356	**17**
2G21 Test 2	1	1.2	28	13	**7**
2G22	1	1.2	26	2356	**17**
2G22 Test 2	1	1.2	28	13	**7**
2S/4S	1	2.5	45	3	**45**
2S/4S Test 2	1	2.5	45	2	**45**
2V3	1	2.5	96	0	**7**
	(Good tube reads 20)				
2W3	2	2.5	36	4	**8**
2X2/879	4	2.5	52	**0**	**4**
2Y2	1	2.5	95	0	**4**
	(Good Tube Reads 40)				
2Z2	3	2.5	56	2	**4**
3B4	3	1.2	47	137	**5**
3B7	3	1.5	**30**	23	**18**
3B7 Test 2	3	1.5	30	67	**18**
3D6	2	1.5	25	236	**18**
3E5	2	1.4	31	236	**17**
	(Tapped filament—see instructions 1b to 3b.)				
4A6	2	2	35	34	**8**
4A6 Test 2	3	2	46	56	**8**

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
5AZ4	3	5	43	6	8
5AZ4 Test 2	3	5	43	4	8
6A6	3	6.3	36	23	47
6A6 Test 2	3	6.3	36	56	47
6A7	2	6.3	30	45	67
6A7 Test 2	2	6.3	38	230	67
6AB5	2	6.3	95	23	56
6AB5 Eye CL	4	6.3	0	24	356
6AB5 Eye OP	4	6.3	0	4	2356
6AB8 (ECL-80)	1	6.3	20	6789	35
(No Open Element Test on Pins 6 and 7)					
6AB8 (ECL-80 T-2)	1	6.3	23	12	35
6AC5	3	6.3	34	35	78
6AC7	3	6.3	21	468	357
6AD6	4	6.3	95	345	78
(Good tube reads 26)					
6AD6 Eye CL	4	6.3	0	345	78
6AD6 Eye OP	4	6.3	0	5	3478
6AE5	3	6.3	25	35	78
6AE6	2	6.3	33	35	78
6AE6 Test 2	2	6.3	33	45	78
6AF6	4	6.3	95	345	78
(Good Tube Reads 26)					
6AF6 Eye CL	4	6.3	0	345	78
6AF6 Eye OP	4	6.3	0	5	3478
6AL6	3	6.3	24	450	78
6AL7	1	6.3	40	13456	28
6AL7 Eye OP	4	6.3	0	3	2468
6AL7 Eye CL	4	6.3	0	3	28
6B4	3	6.3	28	35	7
6B5	3	6.3	45	24	356
6B5 Test 2	3	6.3	63	34	256
6B6	3	6.3	32	30	78
6B6 Test 2	1	6.3	40	4	78
6B6 Test 3	1	6.3	40	5	78
6B7	3	6.3	50	230	67
6B7 Test 2	1	6.3	40	4	67
6B7 Test 3	1	6.3	40	5	67
6B8	3	6.3	45	360	78
6B8 Test 2	1	6.3	40	4	78
6B8 Test 3	1	6.3	40	5	78
6BC7	1	6.3	20	2	14
6BC7 Test 2	1	6.3	21	6	47
6BC7 Test 3	1	6.3	20	8	49
6BD7	1	6.3	21	12	35
6BD7 Test 2	1	6.3	51	6	35
6BD7 Test 3	1	6.3	46	8	35
6BF5	3	6.3	18	1567	23
6BF7	1	6.3	21	78	35
6BF7 Test 2	1	6.3	21	12	34
(Use adapter BW)					
6BG7	1	6.3	20	78	35
6BG7 Test 2	1	6.3	20	12	34
(Use adapter BW)					
6BT6	1	6.3	21	17	23
6BT6 Test 2	1	6.3	30	5	23
6BT6 Test 3	1	6.3	30	6	23
6BX6(EF-80)	2	6.3	22	2789	135
6C5	2	6.3	30	35	78
6C6	1	6.3	21	230	456
6C7	1	6.3	21	20	67
6C7 Test 2	1	6.3	40	4	67
6C7 Test 3	1	6.3	40	5	67
6C8	2	6.3	27	30	47
6C8 Test 2	2	6.3	27	56	78
6D6	3	6.3	27	2340	56

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
6H5	2	6.3	36	23	56
6H5 Eye CL	4	6.3	0	24	356
6H5 Eye OP	4	6.3	0	4	2356
6N8	1	6.3	22	126	34
6N8 Test 2	1	6.3	45	7	34
6N8 Test 3	1	6.3	45	8	34
6T7	1	6.3	20	30	78
6T7 Test 2	1	6.3	40	4	78
6T7 Test 3	1	6.3	40	5	78
6U4	3	6.3	18	5	37
6U8	2	6.3	22	19	58
6U8 Test 2	2	6.3	22	236	57
6V3	3	6.3	16	279	50
6V8	1	6.3	21	16	35
6V8 Test 2	1	6.3	20	7	58
6V8 Test 3	2	6.3	65	9	35
6V8 Test 4	2	6.3	22	2	35
6W5	3	6.3	25	3	78
6W5 Test 2	3	6.3	25	5	78
6X8	2	6.3	24	23	56
6X8 Test 2	2	6.3	23	789	156
6Y3G	4	6.3	47	0	7
6Z5 (6Z5/12Z5)	3	6.3	25	3	246
6Z5 Test 2	3	6.3	25	5	246
7B6LM	3	6.3	31	23	478
7B6LM Test 2	1	6.3	58	5	478
7B6LM Test 3	1	6.3	58	6	478
10	3	7.5	37	23	4
10Y	3	7.5	42	23	4
12A	2	5	26	23	4
12AL5	2	12.6	24	2	135
12AL5 Test 2	2	12.6	25	7	135
12AV6	3	12.6	19	17	24
12AV6 Test 2	1	12.6	44	5	24
12AV6 Test 3	1	12.6	44	6	24
12BT6	1	12.6	22	17	23
12BT6 Test 2	1	12.6	29	5	23
12BT6 Test 3	1	12.6	29	6	23
14	2	12.6	30	230	45
15	2	2	36	230	45
15A6(PL-83)	1	12.6	20	1267	35
17	3	12.6	40	23	45
18	3	12.6	31	234	56
19	3	2	37	23	6
19 Test 2	3	2	39	45	6
20	2	6.3	48	23	4
22	2	3.3	56	230	4
24A	2	2.5	32	230	45
25S	1	2	31	25	6
25S Test 2	1	2	40	4	6
25S Test 3	1	2	40	3	6
26	2	1.5	36	23	4
27	2	2.5	32	23	45
29	2	2.5	36	23	456
30	2	2	35	23	4
31	2	2	40	23	4
32	2	2	42	230	4
33	3	2	39	234	5
34	2	2	40	230	4
36	2	6.3	32	230	45
37	3	6.3	37	23	45
38	3	6.3	36	230	45
39/44	2	6.3	30	230	45
55	2	2.5	32	20	56
55 Test 2	1	2.5	40	3	56
55 Test 3	1	2.5	40	4	56

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
56	2	2.5	30	23	45
57	2	2.5	30	230	456
58	3	2.5	35	230	456
59	3	2.5	29	2345	67
77	2	6.3	30	230	456
78	3	6.3	31	230	456
79	3	6.3	30	23	46
79 Test 2	3	6.3	30	50	46
88	3	5	26	2	4
88 Test 2	3	5	26	3	4
88M	3	6.3	31	340	578
88S	3	6.3	32	230	456
89	3	6.3	32	230	56
89RS	3	6.3	36	20	357
89RS Test 2	1	6.3	24	4	37
89RS Test 3	1	6.3	24	6	37
95	3	2.5	36	234	56
98	3	6.3	26	2	45
98 Test 2	3	6.3	26	3	45
99	2	3.3	55	23	4
99V/V99	2	3.3	55	13	4
128A/2523N1	4	2.5	20	23	45
201-B	2	5	45	23	4
201-C	2	5	45	23	4
210-T	3	7.5	56	23	4
230-S	2	2	35	23	4
233-S	3	2	39	234	5
234-S	2	2	40	230	4
257-A	2	3.3	41	20	4
262-B	3	7.5	42	20	34
274-A	3	5	36	2	4
274-A Test 2	3	5	36	3	4
300-B	3	5	21	23	4
313-CB	4	Off	53	2	14
313-CD	4	Off	44	2	14
348-A	1	6.3	24	3450	28
376-B	4	Off	37	5	27
393-A	4	2.5	20	40	12
484	3	2.5	32	23	45
485	2	2.5	33	23	45
523-AX	1	1.2	25	124	5
525-AX	1	1.2	26	124	5
526-AX	1	1.2	26	124	5
553-AXA	1	1.2	25	124	5
605-CX	2	6.3	22	1257	46
606-BX	2	6.3	23	1	34
608-CX	3	6.3	20	15	46
615	3	6.3	30	0	78
615-HY	3	6.3	30	0	78
(Short top caps together)					
619-CX	2	6.3	25	14	35
713-A	2	6.3	25	468	357
717-A	1	6.3	23	468	357
800	3	7.5	54	0	4
(Short top caps together)					
5686	3	6.3	30	2679	1348
5725	3	6.3	20	1567	24
5726	3	6.3	22	2	1457
5726 Test 2	3	6.3	22	7	1245
5751	1	6.3	22	12	345
5751 Test 2	1	6.3	28	67	345
(Tapped filament—see instructions 1b to 3b)					
5784	1	6.3	22	1257	46
5823	4	Off	30	1	37
CK5829	2	6.3	24	6	57
CK5829 Test 2	2	6.3	24	1	25

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
5840	1	6.3	22	157	2348
(Use adapter BW)					
GL5844(6J6)	1	6.3	18	16	47
GL5844(6J6) T-2	1	6.3	18	25	47
5845	1	2.5	85	5	134
5845 Test 2	1	2.5	85	1	345
5879	1	6.3	26	1789	34
5881	3	6.3	20	345	28
5899	1	6.3	22	157	2348
(Use adapter BW)					
5910	1	1.4	26	236	15
5915	1	6.3	24	16	2457
5915 Test 2	1	6.3	56	567	124
5930	3	2.5	24	23	1
5963	2	6.3	25	12	345
5963 Test 2	2	6.3	25	67	458
5964	3	6.3	18	16	37
5964 Test 2	3	6.3	18	25	37
5977	1	6.3	22	18	35
(Use adapter BW)					
CK5995	3	6.3	26	1	35
GL6005	3	6.3	25	1567	24
7193	2	6.3	24	0	78
(Short top caps together)					
AF	3	2.5	24	2	4
AF Test 2	3	2.5	24	3	4
AG	3	5	26	2	4
AG Test 2	3	5	26	3	4
CK1007	4	.75	21	3	6
CK1007 Test 2	4	.75	21	5	6
FM-1000	1	6.3	20	25	137
FM-1000 Test 2	1	6.3	35	46	137
G-2	1	2.5	45	3	45
G-2 Test 2	1	2.5	45	2	45
G-4	1	2.5	45	3	45
G-4 Test 2	1	2.5	45	2	45
G-84	3	2.5	56	2	4
GA	3	5	32	234	5
GL-5663	2	6.3	32	157	23
KR-1	3	6.3	24	2	34
KR-5	3	6.3	36	234	5
KR-25	3	2.5	36	234	56
KR-98	3	6.3	26	2	45
KR-98 Test 2	3	6.3	26	3	45
PZ	3	2.5	41	234	5
PZH	3	2.5	36	234	56
R-30	2	2	35	23	4
R-100	3	7.5	43	0	4
(Short top caps together)					
R-200	3	7.5	40	0	4
(Filament connected from 1 and 4 on 4 pin tester socket to 2 and 4 pin of tube—short top caps together and connect to top cap lead.)					
RK-33	3	6.3	27	45	67
RK-33 Test 2	3	6.3	27	30	27
RK-34	3	6.3	27	50	47
(Top cap lead on left top cap)					
RK-34 Test 2	3	6.3	27	30	47
(Top cap lead on right top cap)					
RK-61	1	1.4	26	13	4
WL-481	4	2.5	59	0	4
WX-12	1	1.4	55	23	4
WND. A	3	6.3	35	23	456
WND. C	3	2.5	35	23	456

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
5AZ4	3	5	43	6	8
5AZ4 Test 2	3	5	43	4	8
6A6	3	6.3	36	23	47
6A6 Test 2	3	6.3	36	56	47
6A7	2	6.3	30	45	67
6A7 Test 2	2	6.3	38	230	67
6AB5	2	6.3	95	23	56
6AB5 Eye CL	4	6.3	0	24	356
6AB5 Eye OP	4	6.3	0	4	2356
6AB8 (ECL-80)	1	6.3	20	6789	35
(No Open Element Test on Pins 6 and 7)					
6AB8 (ECL-80 T-2)	1	6.3	23	12	35
6AC5	3	6.3	34	35	78
6AC7	3	6.3	21	468	357
6AD6	4	6.3	95	345	78
(Good tube reads 26)					
6AD6 Eye CL	4	6.3	0	345	78
6AD6 Eye OP	4	6.3	0	5	3478
6AE5	3	6.3	25	35	78
6AE6	2	6.3	33	35	78
6AE6 Test 2	2	6.3	33	45	78
6AF6	4	6.3	95	345	78
(Good Tube Reads 26)					
6AF6 Eye CL	4	6.3	0	345	78
6AF6 Eye OP	4	6.3	0	5	3478
6AL6	3	6.3	24	450	78
6AL7	1	6.3	40	13456	28
6AL7 Eye OP	4	6.3	0	3	2468
6AL7 Eye CL	4	6.3	0	3	28
6B4	3	6.3	28	35	7
6B5	3	6.3	45	24	356
6B5 Test 2	3	6.3	63	34	256
6B8	3	6.3	32	30	78
6B6 Test 2	1	6.3	40	4	78
6B6 Test 3	1	6.3	40	5	78
6B7	3	6.3	50	230	67
6B7 Test 2	1	6.3	40	4	67
6B7 Test 3	1	6.3	40	5	67
6B8	3	6.3	45	360	78
6B8 Test 2	1	6.3	40	4	78
6B8 Test 3	1	6.3	40	5	78
6BC7	1	6.3	20	2	14
6BC7 Test 2	1	6.3	21	6	47
6BC7 Test 3	1	6.3	20	8	49
6BD7	1	6.3	21	12	35
6BD7 Test 2	1	6.3	51	6	35
6BD7 Test 3	1	6.3	46	8	35
6BF5	3	6.3	18	1567	23
6BF7	1	6.3	21	78	35
6BF7 Test 2	1	6.3	21	12	34
(Use adapter BW)					
6BG7	1	6.3	20	78	35
6BG7 Test 2	1	6.3	20	12	34
(Use adapter BW)					
6BT6	1	6.3	21	17	23
6BT6 Test 2	1	6.3	30	5	23
6BT6 Test 3	1	6.3	30	6	23
6BX6(EF-80)	2	6.3	22	2789	135
6C5	2	6.3	30	35	78
6C8	1	6.3	21	230	456
6C7	1	6.3	21	20	67
6C7 Test 2	1	6.3	40	4	67
6C7 Test 3	1	6.3	40	5	67
6C8	2	6.3	27	30	47
6C8 Test 2	2	6.3	27	56	78
6D6	3	6.3	27	2340	56

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
6H5	2	6.3	36	23	56
6H5 Eye CL	4	6.3	0	24	356
6H5 Eye OP	4	6.3	0	4	2356
6N8	1	6.3	22	126	34
6N8 Test 2	1	6.3	45	7	34
6N8 Test 3	1	6.3	45	8	34
6T7	1	6.3	20	30	78
6T7 Test 2	1	6.3	40	4	78
6T7 Test 3	1	6.3	40	5	78
6U4	3	6.3	18	5	37
6U8	2	6.3	22	19	58
6U8 Test 2	2	6.3	22	236	57
6V3	3	6.3	16	279	50
6V8	1	6.3	21	16	35
6V8 Test 2	1	6.3	20	7	38
6V8 Test 3	2	6.3	65	9	35
6V8 Test 4	2	6.3	22	2	35
6W5	3	6.3	25	3	78
6W5 Test 2	3	6.3	25	5	78
6X8	2	6.3	24	23	56
6X8 Test 2	2	6.3	23	789	156
6Y3G	4	6.3	47	0	7
6Z5 (6Z5/12Z5)	3	6.3	25	3	246
6Z5 Test 2	3	6.3	25	5	246
7B6LM	3	6.3	31	23	478
7B6LM Test 2	1	6.3	58	5	478
7B6LM Test 3	1	6.3	58	6	478
10	3	7.5	37	23	4
10Y	3	7.5	42	23	4
12A	2	5	26	23	4
12AL5	2	12.6	24	2	135
12AL5 Test 2	2	12.6	25	7	135
12AV6	3	12.6	19	17	24
12AV6 Test 2	1	12.6	44	5	24
12AV6 Test 3	1	12.6	44	6	24
12BT6	1	12.6	22	17	23
12BT6 Test 2	1	12.6	29	5	23
12BT6 Test 3	1	12.6	29	6	23
14	2	12.6	30	230	45
15	2	2	36	230	45
15A6(PL-83)	1	12.6	20	1267	35
17	3	12.6	40	23	45
18	3	12.6	31	234	56
19	3	2	37	23	6
19 Test 2	3	2	39	45	6
20	2	6.3	48	23	4
22	2	3.3	56	230	4
24A	2	2.5	32	230	45
25S	1	2	31	25	6
25S Test 2	1	2	40	4	6
25S Test 3	1	2	40	3	6
26	2	1.5	36	23	4
27	2	2.5	32	23	45
29	2	2.5	36	23	456
30	2	2	35	23	4
31	2	2	40	23	4
32	2	2	42	230	4
33	3	2	39	234	5
34	2	2	40	230	4
36	2	6.3	32	230	45
37	3	6.3	37	23	45
38	3	6.3	36	230	45
39/44	2	6.3	30	230	45
55	2	2.5	32	20	56
55 Test 2	1	2.5	40	3	56
55 Test 3	1	2.5	40	4	56

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
56	2	2.5	30	23	45
57	2	2.5	30	230	456
58	3	2.5	35	230	456
59	3	2.5	29	2345	67
77	2	6.3	30	230	456
78	3	6.3	31	230	456
79	3	6.3	30	23	46
79 Test 2	3	6.3	30	50	46
88	3	5	26	2	4
88 Test 2	3	5	26	3	4
88M	3	6.3	31	340	578
88S	3	6.3	32	230	456
89	3	6.3	32	230	56
89RS	3	6.3	36	20	357
89RS Test 2	1	6.3	24	4	37
89RS Test 3	1	6.3	24	6	37
95	3	2.5	36	234	56
98	3	6.3	26	2	45
98 Test 2	3	6.3	26	3	45
99	2	3.3	55	23	4
99V/V99	2	3.3	55	13	4
128A/2523N1	4	2.5	20	23	45
201-B	2	5	45	23	4
201-C	2	5	45	23	4
210-T	3	7.5	56	23	4
230-S	2	2	35	23	4
233-S	3	2	39	234	5
234-S	2	2	40	230	4
257-A	2	3.3	41	20	4
262-B	3	7.5	42	20	34
274-A	3	5	36	2	4
274-A Test 2	3	5	36	3	4
300-B	3	5	21	23	4
313-CB	4	Off	53	2	14
313-CD	4	Off	44	2	14
348-A	1	6.3	24	3450	28
376-B	4	Off	37	5	27
393-A	4	2.5	20	40	12
484	3	2.5	32	23	45
485	2	2.5	33	23	45
523-AX	1	1.2	25	124	5
525-AX	1	1.2	26	124	5
526-AX	1	1.2	26	124	5
553-AXA	1	1.2	25	124	5
605-CX	2	6.3	22	1257	46
606-BX	2	6.3	23	1	34
608-CX	3	6.3	20	15	46
615	3	6.3	30	0	78
615-HY	3	6.3	30	0	78
(Short top caps together)					
619-CX	2	6.3	25	14	35
713-A	2	6.3	25	468	357
717-A	1	6.3	23	468	357
800	3	7.5	54	0	4
(Short top caps together)					
5686	3	6.3	30	2679	1348
5725	3	6.3	20	1567	24
5726	3	6.3	22	2	1457
5726 Test 2	3	6.3	22	7	1245
5751	1	6.3	22	12	345
5751 Test 2	1	6.3	28	67	345
(Tapped filament—see instructions 1b to 3b)					
5784	1	6.3	22	1257	46
5823	4	Off	30	1	37
CK5829	2	6.3	24	6	57
CK5829 Test 2	2	6.3	24	1	25

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Up	D Down
5840	1	6.3	22	157	2348
(Use adapter BW)					
GL5844(6J6)	1	6.3	18	16	47
GL5844(6J6) T-2	1	6.3	18	25	47
5845	1	2.5	85	5	134
5845 Test 2	1	2.5	85	1	345
5879	1	6.3	26	1789	34
5881	3	6.3	20	345	28
5899	1	6.3	22	157	2348
(Use adapter BW)					
5910	1	1.4	26	236	15
5915	1	6.3	24	16	2457
5915 Test 2	1	6.3	56	567	124
5930	3	2.5	24	23	1
5963	2	6.3	25	12	345
5963 Test 2	2	6.3	25	67	458
5964	3	6.3	18	16	37
5964 Test 2	3	6.3	18	25	37
5977	1	6.3	22	18	35
(Use adapter BW)					
CK5995	3	6.3	26	1	35
GL6005	3	6.3	25	1567	24
7193	2	6.3	24	0	78
(Short top caps together)					
AF	3	2.5	24	2	4
AF Test 2	3	2.5	24	3	4
AG	3	5	26	2	4
AG Test 2	3	5	26	3	4
CK1007	4	.75	21	3	6
CK1007 Test 2	4	.75	21	5	6
FM-1000	1	6.3	20	25	137
FM-1000 Test 2	1	6.3	35	46	137
G-2	1	2.5	45	3	45
G-2 Test 2	1	2.5	45	2	45
G-4	1	2.5	45	3	45
G-4 Test 2	1	2.5	45	2	45
G-84	3	2.5	56	2	4
GA	3	5	32	234	5
GL-5663	2	6.3	32	157	23
KR-1	3	6.3	24	2	34
KR-5	3	6.3	36	234	5
KR-25	3	2.5	36	234	56
KR-98	3	6.3	26	2	45
KR-98 Test 2	3	6.3	26	3	45
PZ	3	2.5	41	234	5
PZH	3	2.5	36	234	56
R-30	2	2	35	23	4
R-100	3	7.5	43	0	4
(Short top caps together)					
R-200	3	7.5	40	0	4
(Filament connected from 1 and 4 on 4 pin tester socket to 2 and 4 pin of tube—short top caps together and connect to top cap lead.)					
RK-33	3	6.3	27	45	67
RK-33 Test 2	3	6.3	27	30	27
RK-34	3	6.3	27	50	47
(Top cap lead on left top cap)					
RK-34 Test 2	3	6.3	27	30	47
(Top cap lead on right top cap)					
RK-61	1	1.4	26	13	4
WL-481	4	2.5	59	0	4
WX-12	1	1.4	55	23	4
WND. A	3	6.3	35	23	456
WND. C	3	2.5	35	23	456

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Pp	D Down
X99	2	3.3	55	23	**4**
XXB	2	1.4	40	34	**18**
XXB Test 2	2	1.4	40	56	**18**
XXD	3	12.6	25	34	2567**8**
XXD Test 2	3	12.6	25	56	2347**8**

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Pp	D Down
XXFM	1	6.3	20	23	4**78**
XXFM Test 2	1	6.3	27	5	4**8**
XXFM Test 3	1	6.3	27	6	7**8**
XXL	2	6.3	24	26	7**8**
Z2000	1	6.3	22	25	**3**7
Z2000 Test 2	1	6.3	22	16	**3**7

THE TRIPLETT ELECTRICAL INSTRUMENT COMPANY
Bluffton, Ohio, U. S. A.

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Part No. T-84-28-060153

INSTRUCTIONS FOR ADAPTER "BV" FOR TESTING TV PICTURE TUBES ON MODELS 3480, 3413, 3413-A, 2413 AND 3212.

GENERAL

Read the instruction book, supplied with your Tube Tester, carefully for setting up tubes and use the same procedure as for regular tubes, after first plugging in the octal plug of the adapter into the octal socket of the tube tester and the top cap connection connected to the terminal at side of octal plug. The TV or CRO tube socket must be removed and the duo-decal socket of the adapter placed on the TV picture tube. This may be done by leaving the picture tube mounted in the set and bringing the adapter socket into the set. This test will check emission of the tube's cathode.

For short test, value test, open element test and Filament continuity test, use the same procedure as outlined in the Tube Tester instruction book.

Note that the 12 pin duo-decal tube base is connected to the octal socket as tabled below, so that shorts between elements of the picture tube may be made, except between pins 6 & 9, 7 & 10 and between elements and the conductive coating tube shield.

Duo-decal Tube Socket Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Connect to Octal pin number (corresponding to lever No. of tester)	1	2	3	4		5	6	top cap	5	6	7	8

Note that top cap lever number is "O" for 3480, 3413 and 3413-A and "10" for 3212 and 2413.

Note that underscore denotes dark face type.

SETTINGS

	3413 and 3413-A					3212 and 2413				
TYPE	A	B	C	U	D	A	B	C	U	D
3MP1	1	6.3	23	25	78					
5UP1	1	6.3	22	20	13	1	6.3	29	1	38
8AP4	1	6.3	23	26	17	1	6.3	29	1	78
10BP4	1	6.3	25	26	17	1	6.3	32	1	78
10CP4	1	6.3	23	26	17	1	6.3	29	1	78
10FP4	1	6.3	23	26	17	1	6.3	29	1	78
12JP4	1	6.3	25	26	17	1	6.3	32	1	78
12KP4	1	6.3	23	26	17	1	6.3	29	1	78
12LP4	1	6.3	23	26	17	1	6.3	29	1	78

3413 and 3413-A						3212 and 2413				
TYPE	A	B	C	U	D	A	B	C	U	D
12QP4	1	6.3	25	26	17	1	6.3	32	1	78
12RP4	1	6.3	25	26	17	1	6.3	32	1	78
12TP4	1	6.3	23	26	17	1	6.3	29	1	78
12UP4	1	6.3	25	26	17	1	6.3	32	1	78
14BP4	1	6.3	23	26	17	1	6.3	29	1	78
14DP4	1	6.3	23	26	17	1	6.3	29	1	78
15AP4	1	6.3	25	26	17	1	6.3	32	1	78
15CP4	1	6.3	23	26	17	1	6.3	29	1	78
15DP4	1	6.3	25	26	17	1	6.3	32	1	78
16AP4	1	6.3	25	26	17	1	6.3	32	1	78
16CP4	1	6.3	23	26	17	1	6.3	29	1	78
16DP4	1	6.3	23	26	17	1	6.3	29	1	78
16EP4	1	6.3	25	26	17	1	6.3	32	1	78
16FP4	1	6.3	25	26	17	1	6.3	32	1	78
16GP4	1	6.3	25	26	17	1	6.3	32	1	78
16HP4	1	6.3	23	26	17	1	6.3	29	1	78
16JP4	1	6.3	25	26	17	1	6.3	32	1	78
16LP4	1	6.3	23	26	17	1	6.3	29	1	78
16MP4	1	6.3	23	26	17	1	6.3	29	1	78
16QP4	1	6.3	23	26	17	1	6.3	29	1	78
16RP4	1	6.3	25	26	17	1	6.3	32	1	78
16SP4	1	6.3	23	26	17	1	6.3	29	1	78
16TP4	1	6.3	25	26	17	1	6.3	32	1	78
16VP4	1	6.3	23	26	17	1	6.3	29	1	78
16WP4	1	6.3	23	26	17	1	6.3	29	1	78
16XP4	1	6.3	23	26	17	1	6.3	29	1	78
16YP4	1	6.3	23	26	17	1	6.3	29	1	78
19AP4	1	6.3	25	26	17	1	6.3	32	1	78
19DP4	1	6.3	23	26	17	1	6.3	29	1	78
19EP4	1	6.3	23	26	17	1	6.3	29	1	78
19FP4	1	6.3	23	26	17	1	6.3	29	1	78
19GP4	1	6.3	23	26	17	1	6.3	29	1	78

NOTE: Underscore denotes dark face type.

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Pp	D Down
X99	2	3.3	55	23	**4**
XXB	2	1.4	40	34	**18**
XXB Test 2	2	1.4	40	56	**18**
XXD	3	12.6	25	34	2567**8**
XXD Test 2	3	12.6	25	56	2347**8**

TUBE TYPE	KNOBS A Cir	B Fil	C Load	LEVER POSITION U Pp	D Down
XXFM	1	6.3	20	23	4**78**
XXFM Test 2	1	6.3	27	5	4**8**
XXFM Test 3	1	6.3	27	6	7**8**
XXL	2	6.3	24	26	7**8**
Z2000	1	6.3	22	25	**37**
Z2000 Test 2	1	6.3	22	16	**37**

Precision first

. . . to last

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